



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/813,978	03/22/2001	Naoto Akiyama	Q63677	6052

7590 08/28/2002

SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC  
2100 Pennsylvania Avenue, N.W.  
Washington, DC 20037

EXAMINER

LUU, AN T

ART UNIT PAPER NUMBER

2816

DATE MAILED: 08/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/813,978

Applicant(s)

AKIYAMA ET AL.

Examiner

An T. Luu

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. Figures 3 and 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 appears to be misdescriptive because the gate-emitter voltage cannot be kept at positive and negative and alternately between positive and negative at the same time as recited in claim. In fact, the specification (page 34) and figure 1 disclose the gate-emitter can be continuously kept negative or positive. Claim 10 also has similar problem.

In claim 2, it is not clear if limitation "a control signal", line 2, is the same as that of line 5 of claim 1. Further, "switching devices to the secondary" is understood as "switching devices of the secondary". Further, lines 4-5 are not well written.

The limitation “the plural switching devices”, line 4, does not have an antecedent basis. In fact, lines 4-7 of claim 3 are not clearly recited. Examiner considers these lines as “*switching devices to cause or to prevent current to flow for switching the switch.*”

As to claim 6, it is unclear if “plural switching devices”, lines 2-3, is the same as that of claim 2, line 3. Further, the limitation “respectively directly driving the switching device” is not understood. Does it mean both plural switching devices *and* plural gate driving sections drive the semiconductor switch? Lastly, the limitation “the switching devices” does not have a clear antecedent basis.

Claims 4, 5, and 7-9 are rejected for being dependent on the rejected claims noted above.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 6-7 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by the Mentler reference (U.S. Patent 4,308,577).

Mentler discloses in figure 2 an apparatus comprising a transformer 16; a primary side (side having switches 21-23) for controlling current on the primary side of the transformer according to a control signal (signals turning ON/OFF switches 21-23) for controlling a semiconductor switch (21-23); and a secondary side (side connected to 14-1 and 14-2 circuitries) for driving a switch (18 or 20). Therefore, it is inherent that the gate-emitter voltage of the switch

Art Unit: 2816

is alternately switched between ON and OFF states. In other words, this voltage is continuously either in positive or in negative for a period of time as required by claim 1.

As to claim 2, figure 2 shows the control signal of switches 21 and 22 to transmit power for controlling plural switching devices (30, 34, 40, 42, 56, 58) of the secondary side and prevent back electromotive force (via diodes) caused by current flowing in the transformer is cut off.

As to claim 3, figure 2 shows plural switching devices (30, 34, 40, 42, 56, 58) of the secondary side *to cause or to prevent current to flow for switching the switch (18 or 20)*.

As to claim 6, figure 2 discloses plural switching devices (30, 34, 40, 42, 56, 58) of the secondary side and plural gate driving sections (14-1 and 14-2) driving the switch (18 or 20). It is noted that the switches 18 and 20 are in series.

As to claim 7, Mentler shows transistors 18 and 20 being bipolar transistors.

As to claim 10, the scope of this claim is similar to that of claim 1. Therefore, it is rejected for the same reason set forth above.

#### ***Allowable Subject Matter***

6. Claims 4-5 and 8-9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fail to disclose an apparatus comprising elements being configured specifically as recited in claims.

Art Unit: 2816

*Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to An T. Luu whose telephone number is 703-308-4922. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy P. Callahan can be reached on 703-308-4876. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A handwritten signature in black ink, appearing to read 'An T. Luu', with a long horizontal stroke extending to the right.

An T. Luu  
August 24, 2002